MURPHY®

HelmView™
Model HV1000

Operations Manual

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Section 78

In order to consistently bring you the highest quality, full featured products, we reserve the right to change our specifications and designs at any time. The latest version of this manual can be found at www.fwmurphy.com.

Warranty - A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to www.fwmurphy.com/support/warranty.htm

Please read the following information before installing.

BEFORE BEGINNING INSTALLATION OF THIS MURPHY PRODUCT:

- Read and follow all installation instructions.
- Please contact FW MURPHY immediately if you have any questions.

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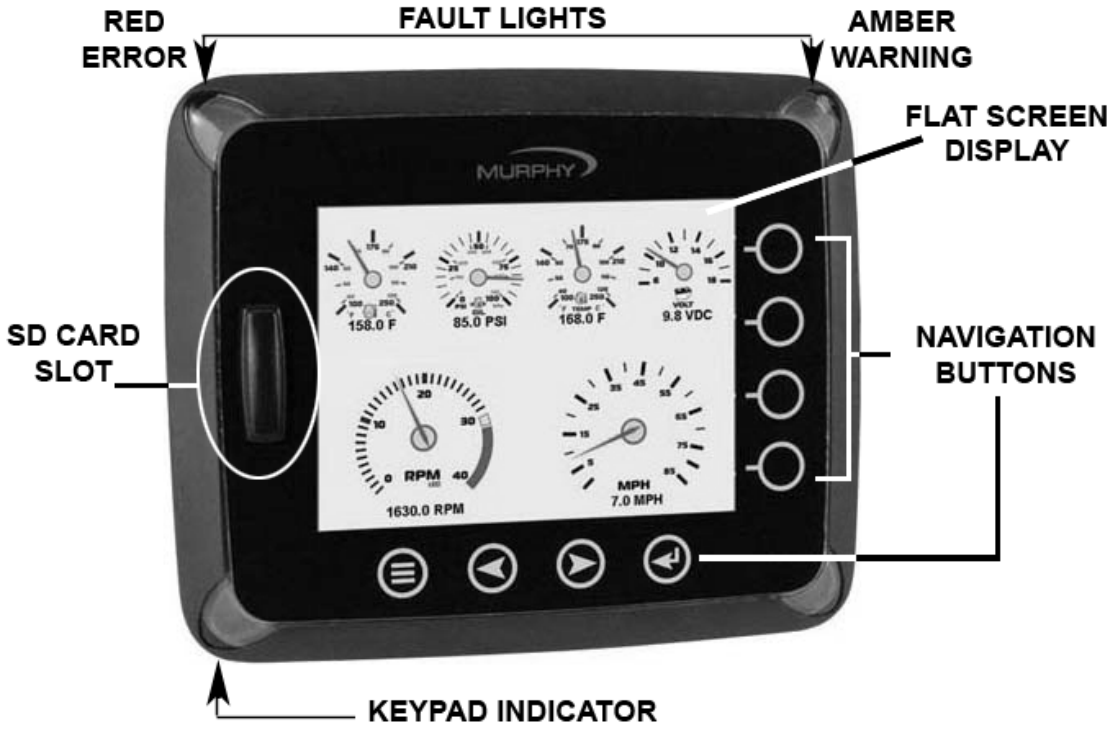
Product Information

The HelmView™ Model HV1000 display is designed for instrumentation and control on electronically controlled engines communicating using SAE J1939 and NMEA 2000. The HV1000 display is a multifunction tool that enables equipment operators to view many different engine or transmission parameters and service codes, and can support up to four engines simultaneously.

Display Features



Fault Lights

These indicators, located in the top two corners of the unit, will light up when a fault occurs. The unit will display an amber light for a warning or a red light for a shutdown condition. A corresponding pop-up message describing the fault may also be displayed on the screen.

Keypad Indicator Light

Located on the bottom left of the unit, the keypad indicator lights up each time one of the touch capacitive buttons is pressed.

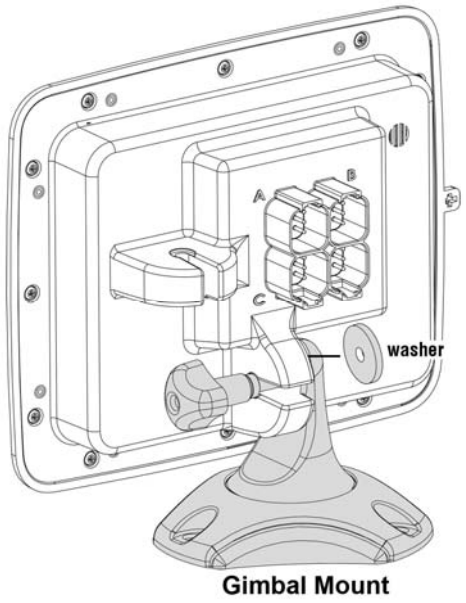
SD Card Slot

This slot is used for reprogramming the unit. If using the GPS Maps package, it is also used for the Navionics map cards to retrieve the maps. It is sealed from the rest of the unit. It should remain covered to keep out water, dust, and other contaminants.

Mounting Options

Two mounting options are provided for the HV1000 display. The in-dash mounting option will require a hole to be cut for insertion of the display. A template is provided with the depth and dimensions of the display for easy installation. The gimbal-mount method enables the display to be installed on top of the dash. The gimbal design allows rotating and tilting the unit for the best display position for the operator's viewing.

For complete installation and wiring instructions, refer to the "HelmView Installation Manual" included with your HV1000 display.



Gimbal Mount

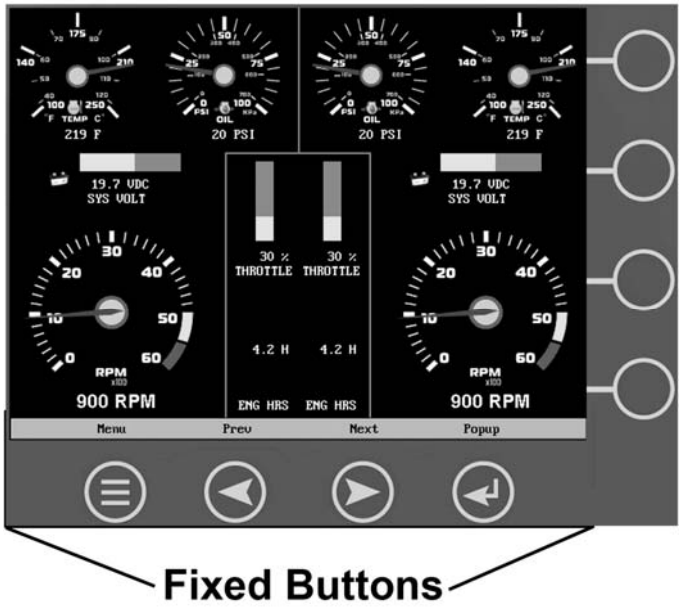
> **NOTE:** Do not leave plastic installation template installed with the display. This will create a condition where the protective cover will engage too tightly.

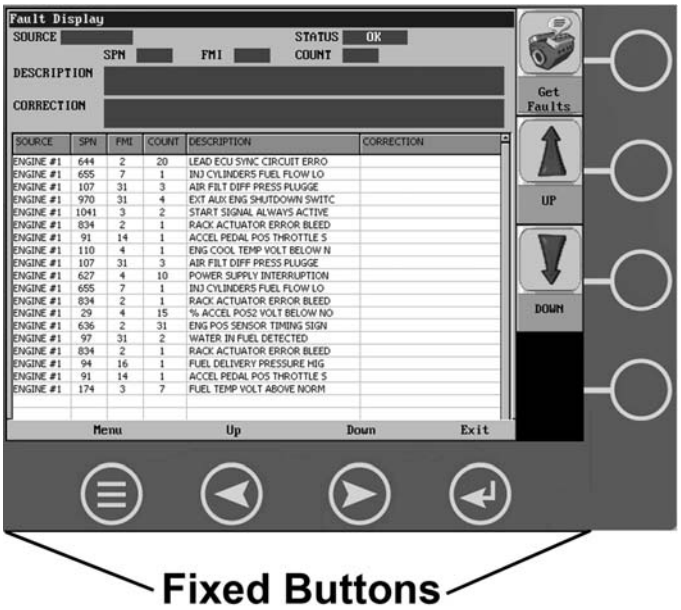
HV1000 Navigation

Navigating the HV1000 display is accomplished using two sets of buttons - one fixed and one virtual - to access menus, pop-ups, and make selections from available options. Each time a button is pressed, confirmation of the button press is given by the amber light at the lower left corner of the display.

Fixed Buttons

The fixed buttons run across the bottom of the display for **Menu**, **Previous**, **Next**, and **Select** options. On some screens, **Select** may be replaced by other options such as **Save**, **Exit**, or **Popup**. **Previous** and **Next** may also be represented as **Up** and **Down**.

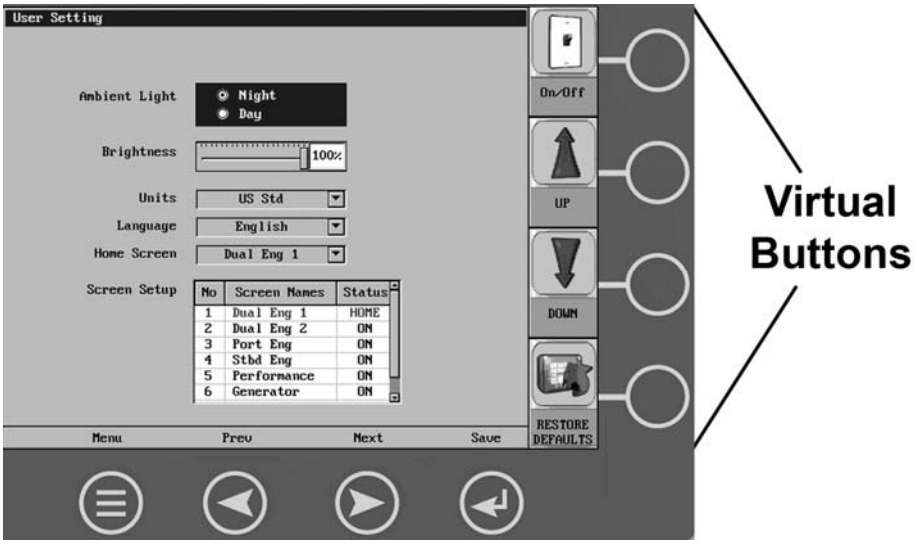


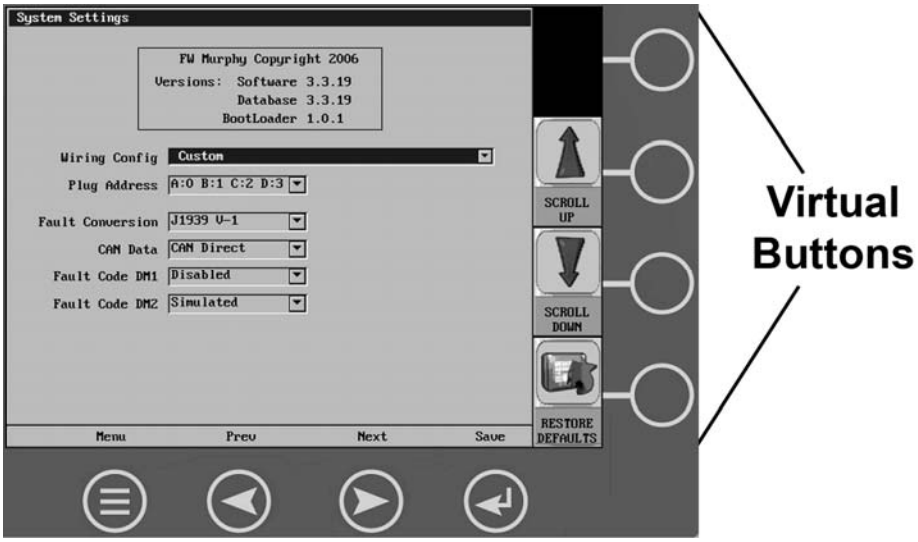


SOURCE	SPN	FMI	COUNT	DESCRIPTION	CORRECTION
ENGINE #1	644	2	20	LEAD ECU SYNC CIRCUIT ERRO	
ENGINE #1	655	7	1	INJ CYLINDERS FUEL FLOW LO	
ENGINE #1	107	31	3	AIR FILT DIFF PRESS PLUGGE	
ENGINE #1	970	31	4	EXT AUX ENG SHUTDOWN SWITC	
ENGINE #1	1041	3	2	START SIGNAL ALWAYS ACTIVE	
ENGINE #1	834	2	1	RACK ACTUATOR ERROR BLEED	
ENGINE #1	91	14	1	ACCEL PEDAL POS THROTTLE S	
ENGINE #1	110	4	1	ENG COOL TEMP VOLT BELOW N	
ENGINE #1	107	31	3	AIR FILT DIFF PRESS PLUGGE	
ENGINE #1	627	4	10	POWER SUPPLY INTERRUPTION	
ENGINE #1	655	7	1	INJ CYLINDERS FUEL FLOW LO	
ENGINE #1	834	2	1	RACK ACTUATOR ERROR BLEED	
ENGINE #1	29	4	15	% ACCEL POS2 VOLT BELOW NO	
ENGINE #1	636	2	31	ENG POS SENSOR TIMING SIGN	
ENGINE #1	97	31	2	WATER IN FUEL DETECTED	
ENGINE #1	834	2	1	RACK ACTUATOR ERROR BLEED	
ENGINE #1	94	16	1	FUEL DELIVERY PRESSURE MIG	
ENGINE #1	91	14	1	ACCEL PEDAL POS THROTTLE S	
ENGINE #1	174	3	7	FUEL TEMP VOLT ABOVE NORM	

Virtual Buttons

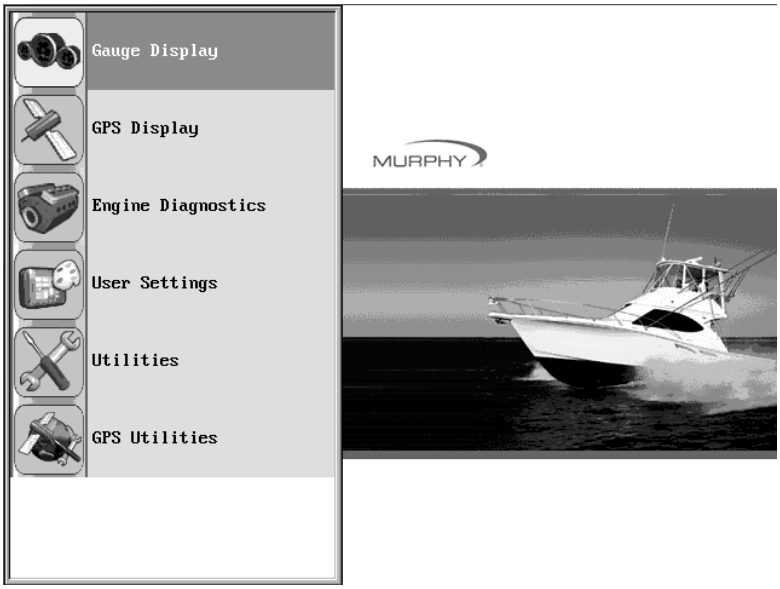
A column of vertical buttons located to the right of the display are virtual buttons. They will change according to the options available for the screen being displayed.





Menu

The Menu can be accessed at any time, from any screen being displayed, by pressing the **Menu** button.



The **Menu** button symbol ☰ is always located in the first position of the fixed buttons.

Popup

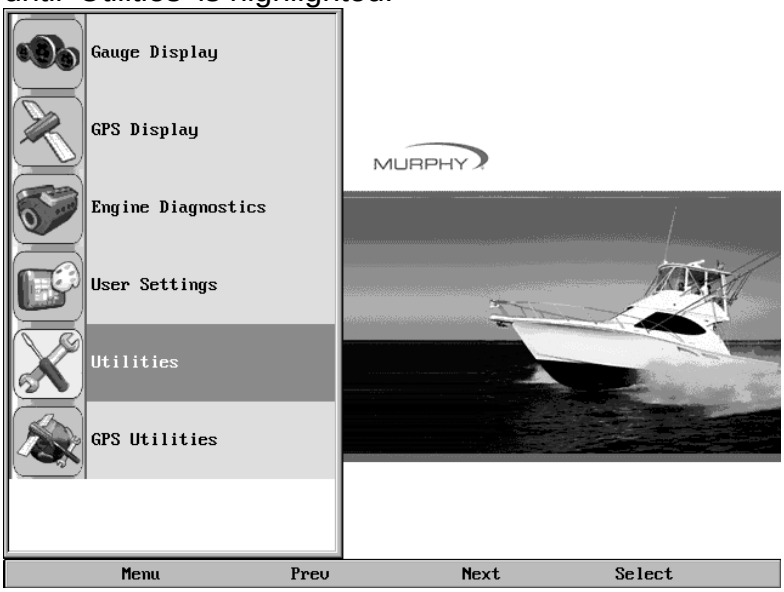
The **Popup** button utilizes the virtual keys to the right of the display to provide shortcuts for navigation and display options.

Setting Up your HV1000 Display for the First Time

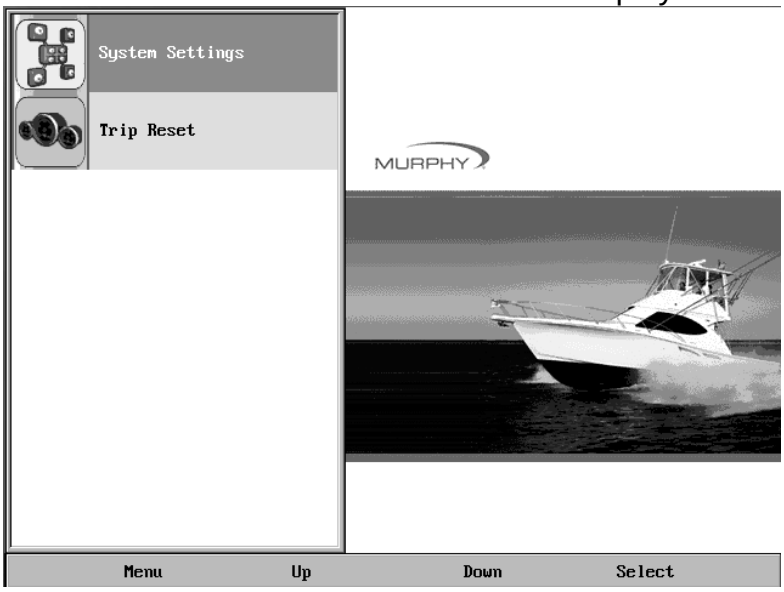
The guidelines presented below are intended for setting up the HV1000 display for the first time. Once the configuration is set up, there is no need to revisit or change any of the settings.

> **NOTE:** If you require assistance during the set up process, contact FW Murphy customer support at (918) 317-4100.

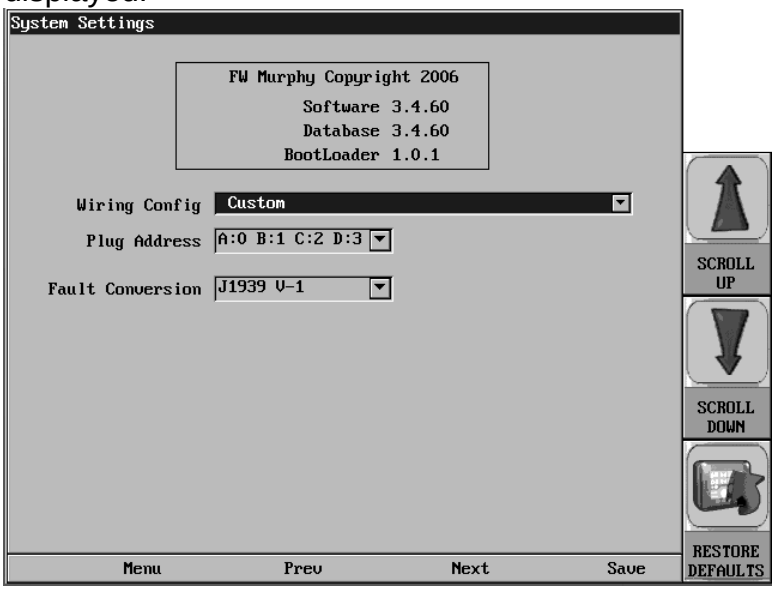
1. At the main menu, press the **Next** button to move the highlight bar through the options until 'Utilities' is highlighted.



2. Press **Select**. The Utilities sub-menu is displayed.



3. From the ‘Utilities’ sub-menu, select ‘System Settings’. The following screen is displayed.



4. With the cursor highlighting the ‘Wiring Config’ field, press the **Scroll Up** or **Scroll Down** virtual buttons (located to the right of the display), to scroll through the list of options. The field options consist of the following:

   - Custom
   - (A) Engine(s) – Single Harness Plug A-Port, Stbd
   - (B) Engine(s) – Single Harness Plug A-Stbd, Port
   - (C) Engines – Dual Harness Plug A&B-Port, Stbd
   - (D) Engines – Dual Harness Plug A&B-Stbd, Port
   - (E) NMEA – Plug D-Port, Stbd
   - (F) NMEA – Plug D-Stbd, Port

   > **NOTE:** This setting needs to match the wiring configuration for how your HV1000 display was installed. Refer to the “**Wiring Instructions**” section of the “HelmView Model HV1000 Installation Manual” for the associated wiring diagrams for each of these options.

   The following table is provided as a partial reference list of engines and their appropriate wiring configuration.

Engine Type	Single Engine Configuration	Twin Engine ** Configuration
Crusader	(A) Single Harness Plug A-Port, Stbd	(A) Single Harness Plug A-Port, Stbd Or (B) Single Harness Plug A-Stbd, Port
Volvo non-EVC Gas	(C) Dual Harness Plug A&B-Port, Stbd	(C) Dual Harness Plug A&B-Port, Stbd Or (D) Dual Harness Plug A&B-Stbd, Port
Volvo Diesel or Gas EVC*	(E) Plug D-Port, Stbd	(E) Plug D-Port, Stbd Or (F) Plug D-Stbd, Port
Cummins (MerCruiser Diesel)	(C) Dual Harness Plug A&B-Port, Stbd	(C) Dual Harness Plug A&B-Port, Stbd Or (D) Dual Harness Plug A&B-Stbd, Port
Cummins HHP	(C) Dual Harness Plug A&B-Port, Stbd	(C) Dual Harness Plug A&B-Port, Stbd Or (D) Dual Harness Plug A&B-Stbd, Port
Catapillar	(C) Dual Harness Plug A&B-Port, Stbd	(C) Dual Harness Plug A&B-Port, Stbd Or (D) Dual Harness Plug A&B-Stbd, Port
Yanmar	(E) Plug D-Port, Stbd	(E) Plug D-Port, Stbd Or (F) Plug D-Stbd, Port

* A NMEA 2000 conversion module is needed. This can be purchased through Volvo Penta (P/N 3840277)

** The difference between A & B, E & F, and C & D is only the orientation of the data on the screen. In a twin application the engines' data may appear on the wrong side of the screen. Changing to the secondary option, A to B, C to D, or E to F, will switch the data to the other side of the display.

5. When the correct setting for 'Wiring Config' is displayed, press the **Next** button to advance to the 'Plug Address' field.

6. With the cursor highlighting the 'Plug Address' field, press the **Scroll Up** or **Scroll Down** virtual buttons to scroll through the list of options. These options consist of the following:

   - A:0 B:1 C:2 D:3
   - A:1 B:2 C:3 D:4
   - A:2 B:3 C:4 D:5
   - A:3 B:4 C:5 D:6
   - A:4 B:5 C:6 D:7
   - A:5 B:6 C:7 D:0
   - A:6 B:7 C:0 D:1
   - A:7 B:0 C:1 D:2

7. When the correct setting for ‘Plug Address’ is displayed, press the **Save** button. The ‘Utilities’ sub-menu is displayed.

Once the ‘System Settings’ have been configured, you may want to set up your display options and favorites. For information on this process, refer to the “**User Setting**” section located in this manual.

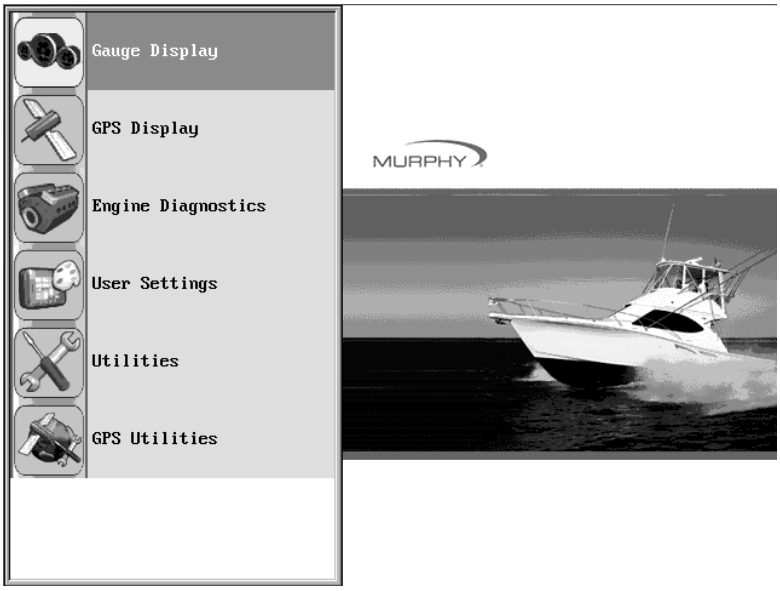
Product Features

Power Up

The HelmView display is most frequently installed with power connected to the ignition. When the ignition is turned on, the HelmView display powers up and the engine health statistics can be viewed via preset gauges. To see more gauge screens, press the **Next** or **Previous** buttons.

Main Menu

The main menu is activated at any time by pressing the **Menu** key on the display.



The following features are accessed through the main menu:

- **Gauge Display** – provides a series of screens that display engine and auxiliary information in a variety of formats.
- **GPS Display** – displays detailed charts, trails and waypoints if used with the optional GPS kit.
- **Engine Diagnostics** – displays a list of engine fault codes, descriptions, and on some engines corrective action will be shown.
- **User Settings** – allows you to customize the display options for ambient light and brightness, set US or metric units, specify the Home screen and screen setup status.
- **Utilities** – allows configuration of the unit including wire configuration, plug address, fault conversion, CAN data, and fault codes. Also displays software version information at the top of the page.
- **GPS Utilities** – contains options to set up track and position, chart and time, and waypoint manager. Also displays satellite status.

Gauge Display

The Gauge Display screen consists of several predefined layouts that contain combinations of analog gauges, curved bar (half-moon) gauges, straight bar gauges, or digital (text) readouts. These screens are displayed upon startup.

You can scroll through the various gauge screens by pressing the **Next** and **Previous** buttons. This can be repeated until all screens have been viewed. The currently displayed screen will stay active until another button is pressed.

Gauge Display Popup

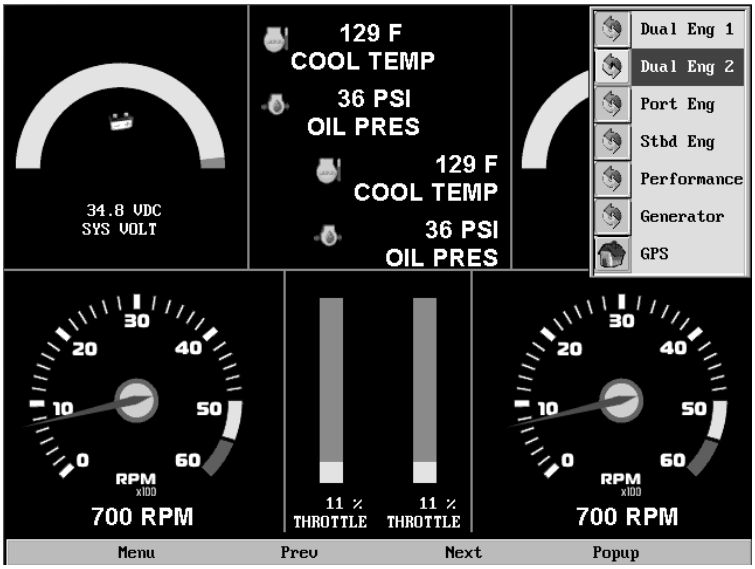
Pressing the **Popup** button on any of the Gauge Display screens will provide additional virtual buttons, as shown below.

These virtual buttons provide quick navigation and access to the following features:

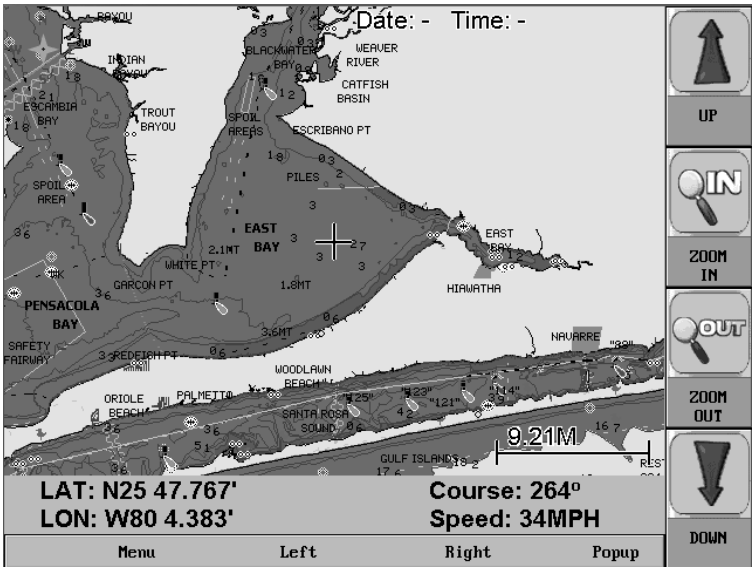
- Screen Names
- GPS Display
- Day/Night
- Home

Screen Names - When selected, a small window appears at the top right of the display. This window contains the names of each of the screens that are currently "Turned ON". Using the **Previous** and **Next** buttons allows you to scroll through and display the various gauge configurations.

> **NOTE:** For instructions on how to turn screens ON or OFF, refer to the **"User Settings"** section of this manual.



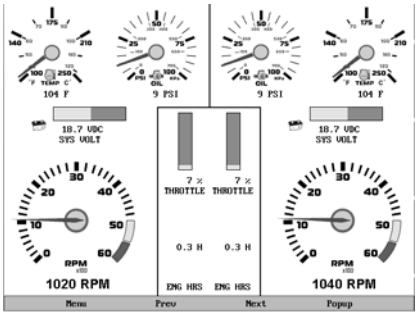
GPS Display - When selected, a GPS map is displayed.



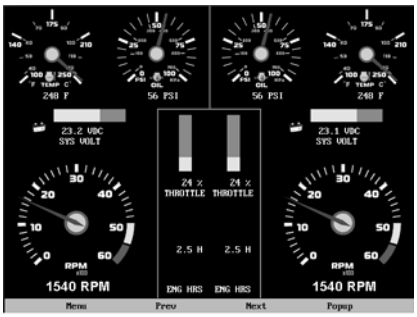
> **NOTE:** Refer to the **"GPS Display"** and "**GPS Utilities**" sections of this manual for additional information.

Day Night - Allows you to toggle the display screen between Day View and Night View.

> **NOTE:** This feature can also be changed in the **"User Settings"** section of this manual.



Day View



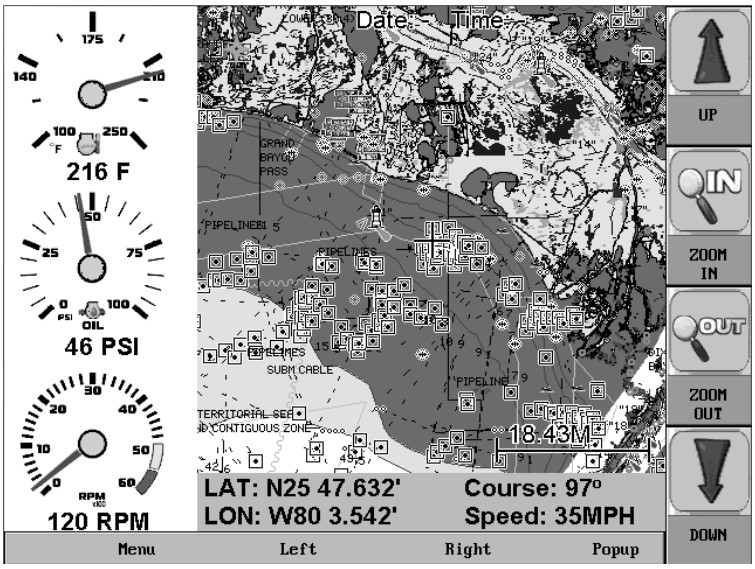
Night View

Home - This one-touch navigation feature allows a pre-defined Home screen to be accessed from the available Gauge Display screens. Once selected, the Home screen will be displayed anytime the **Home** button is pressed.

> **NOTE:** For instructions on how to setup the Home screen, refer to the **"User Settings"** section of this manual.

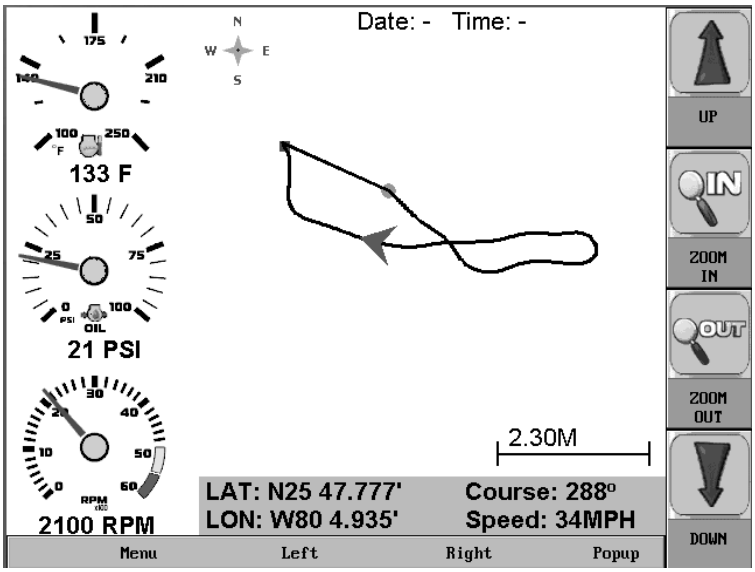
GPS Display

GPS Display is accessed by selecting it from the main menu or the Gauge Display popup. The GPS feature displays the map data and up to 3 configurable gauges. Latitude and Longitude coordinates are also listed, as well as course and speed.



You can navigate the GPS map by pressing the **Up**, **Down**, **Left**, and **Right** buttons to move the cross-hairs on the map. You can also press the **Zoom In** button for more detail or the **Zoom Out** button for a larger view.

Tracking shows the current route and any waypoints you have set. A green arrow indicates your current position, while the red square indicates the initial point of tracking.



NOTE: See "**GPS Utilities"** for information on setting GPS display options.

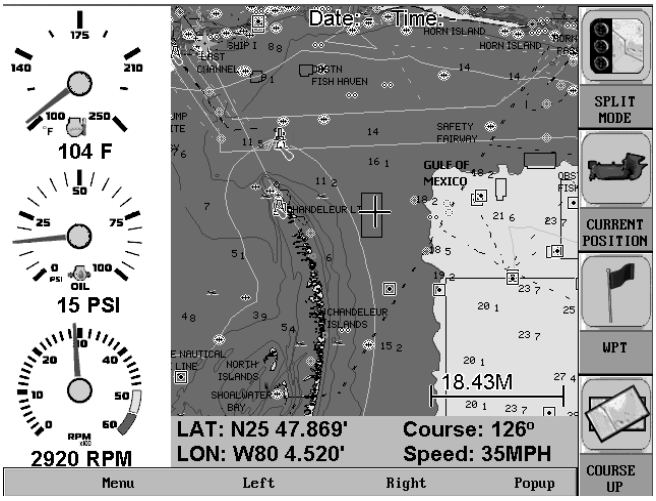
NOTE: In order for this information to be available on the HelmView, a GPS antenna (P/N 78-70-0250) that is NMEA2000 compatible must be installed. This NMEA2000 device (along with any others) should be networked using valid NMEA2000 cabling and terminating resistors (Installation Kit P/N 78-70-0261). The NMEA2000 cabling should ALWAYS be plugged into Plug D (Port D) on the back of the display. See the "HelmView Installation Manual" for further information.

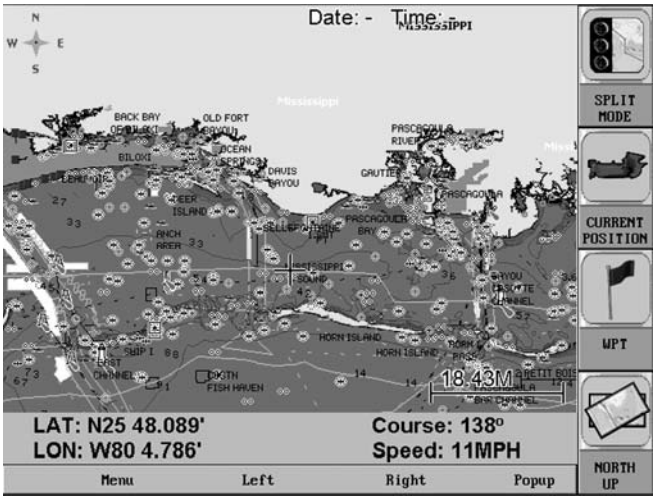
GPS Display Popups

When the GPS Display is on, a **Popup** button provides quick access to following GPS features:

- Split Mode
- Current Position
- WPT
- Course Up/North Up

Split Mode – toggles between a split screen with up to 3 gauges, or a full map screen without gauges, as shown below.





Current Position – is used to return to the current boat/satellite position after having moved the cursor to another location.

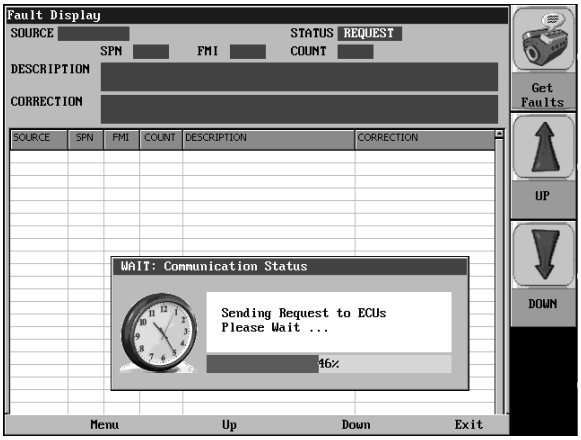
WPT – places a marker or "waypoint" on the map to mark a favorite location.

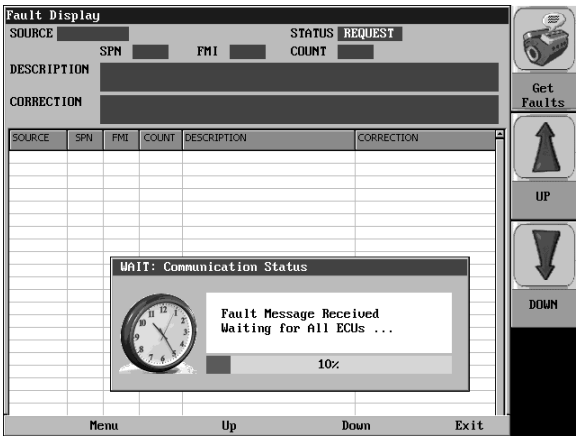
> **NOTE**: Refer to the chapter "GPS Utilities" for more information on WPT management.

North Up / Course Up – determines how the orientation of the map is displayed; either conventional "North Up", or according to the current course heading, "Course Up".

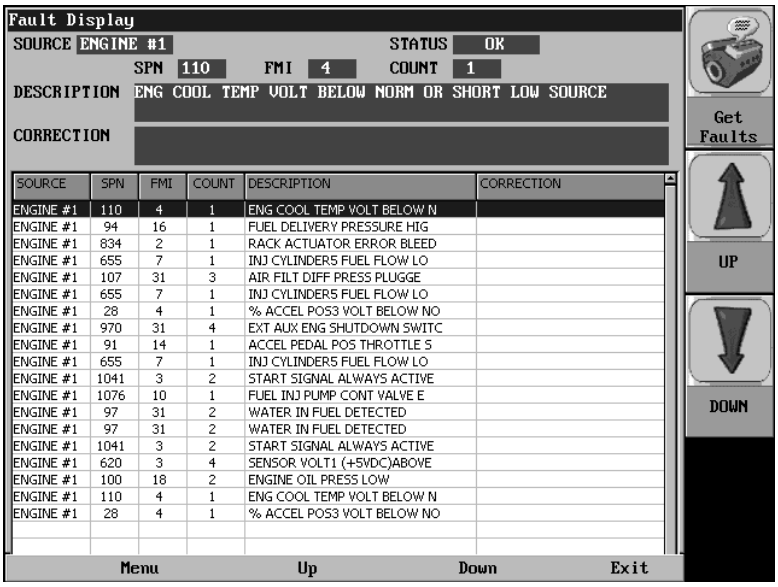
Engine Diagnostics

When choosing this selection, the display will query the engine(s) ECU and provide feedback on any diagnostic codes that have been activated and stored in the ECU for service needs.





The Engine Diagnostics option displays faults based on engine or auxiliary source. A description of the fault as well as the suggested action for correction is provided for each fault occurrence.



SOURCE	SPN	FMI	COUNT	DESCRIPTION	CORRECTION
ENGINE #1	110	4	1	ENG COOL TEMP VOLT BELOW N	
ENGINE #1	94	16	1	FUEL DELIVERY PRESSURE HIG	
ENGINE #1	834	2	1	RACK ACTUATOR ERROR BLEED	
ENGINE #1	655	7	1	INJ CYLINDER5 FUEL FLOW LO	
ENGINE #1	107	31	3	AIR FILT DIFF PRESS PLUGGE	
ENGINE #1	655	7	1	INJ CYLINDER5 FUEL FLOW LO	
ENGINE #1	28	4	1	% ACCEL POS3 VOLT BELOW NO	
ENGINE #1	970	31	4	EXT AUX ENG SHUTDOWN SWITC	
ENGINE #1	91	14	1	ACCEL PEDAL POS THROTTLE S	
ENGINE #1	655	7	1	INJ CYLINDER5 FUEL FLOW LO	
ENGINE #1	1041	3	2	START SIGNAL ALWAYS ACTIVE	
ENGINE #1	1076	10	1	FUEL INJ PUMP CONT VALVE E	
ENGINE #1	97	31	2	WATER IN FUEL DETECTED	
ENGINE #1	97	31	2	WATER IN FUEL DETECTED	
ENGINE #1	1041	3	2	START SIGNAL ALWAYS ACTIVE	
ENGINE #1	620	3	4	SENSOR VOLT1 (+5VDC)ABOVE	
ENGINE #1	100	18	2	ENGINE OIL PRESS LOW	
ENGINE #1	110	4	1	ENG COOL TEMP VOLT BELOW N	
ENGINE #1	28	4	1	% ACCEL POS3 VOLT BELOW NO	

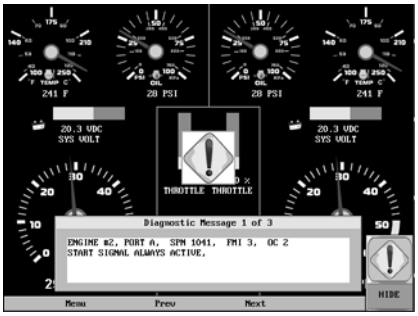
The following is a list of field definitions contained on the ENGINE DIAGNOSTICS screen:

- Source – identifies the component having the fault; engine 1, 2, or auxiliary.
- Status – indicates whether the fault has been corrected.
- SPM –"Suspect Parameter Number" - fault code
  If not translated into text by the HV1000 display, see the engine manufacturer's literature for the definition of the SPN number.
- FMI – “Failure Mode Indicator” - fault code
  The FMI is defined by SAE J1939. If not translated into text, see the SAE standard, or the engine manufacturer's literature.
- Count – The number of times the event has been flagged.
- Description – Most common SPN's and FMI's have text for the description stored in the HV1000 display. If there is no text, then this SPN and FMI must be defined by referring to the engine manufacturer, or the SAE J1939 standard.
- Correction – Trouble-shooting guidelines for corrective action to take in addressing the fault.

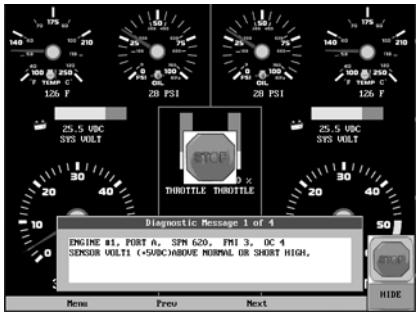
NOTE: This field is only used with certain brands and models of engines.

Fault Code Pop-ups

A fault condition will trigger a pop-up dialog box on the screen describing the nature of the fault. Corresponding red or amber fault lights on the corners of the unit are also activated to indicate the severity of the fault. The following screens are examples of warning and shutdown fault code pop-ups.



Warning



Shutdown

How to Hide/Show Faults

To hide the fault code pop-up being displayed on the screen, press the virtual button on the right next to the “Hide” icon. The pop-up will disappear, however the “Warning” or “Stop” icon will remain on the screen to indicate there is still a fault. Pressing “Hide” does not clear the fault, it only hides the pop-up message.

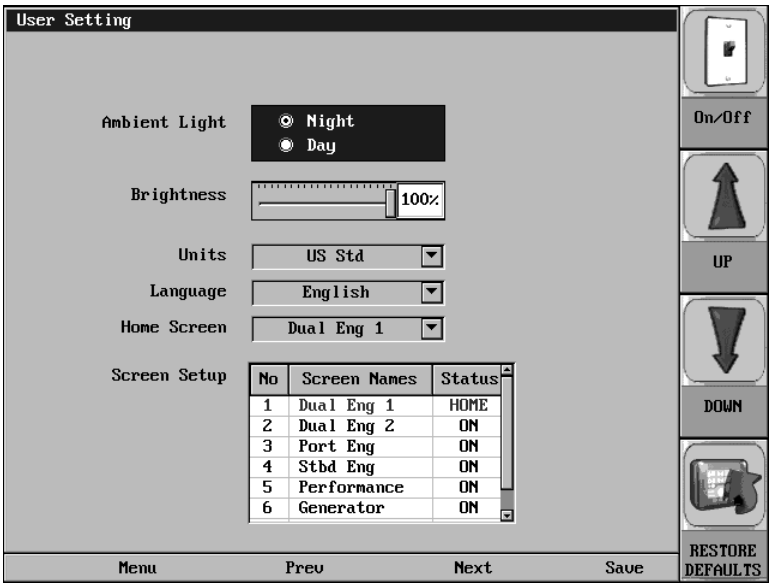
When a fault code has been hidden, a “Show” icon will remain in the bottom right corner. When this virtual button is pressed, the fault code will again be displayed.

Scrolling Through Multiple Messages

The title-bar of the fault code pop-up may indicate multiple messages, as in ‘Diagnostic Message 1 of 3’. You may press the **Prev** and **Next** buttons to scroll through the different messages.

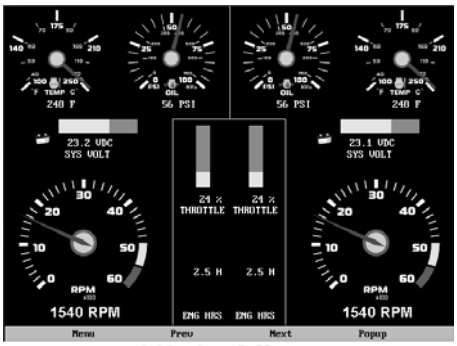
User Settings

User Settings provides options to specify viewing preferences for the HV1000 DISPLAY. Pressing **Prev** and **Next** navigates through the options, and **Up** and **Down** scrolls through the selections for each option.

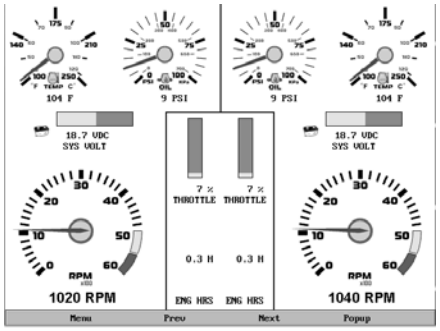


Ambient Light

Night and Day options are provided for ambient lighting. The screens below illustrate these options. When the ambient lighting settings are changed in User Settings, the power-on default is changed.



Night View



Day View

> **NOTE:** The ambient lighting option is also accessible through a pop-up menu on the gauge display screens. When the pop-up is activated, selecting the **Day/Night** virtual button changes the display to the opposite mode.

Brightness

You can set the brightness control by using the **UP** and **DOWN** virtual buttons to change the settings in 5% increments until the desired brightness is achieved.

Units

Select how units are displayed by using the **UP** and **DOWN** virtual buttons to select:

- US Std (US Standard)
- Metric KPa
- Metric Bar
- English Imp (English Imperial)
- Nautical

Language

This option allows you to select the language that will be displayed on the HelmView. As an example, by using the **UP** and **DOWN** virtual buttons, you may select English, French, Italian, German, or Spanish to display the text.

> **NOTE:** The list of language options varies by model.

Home Screen

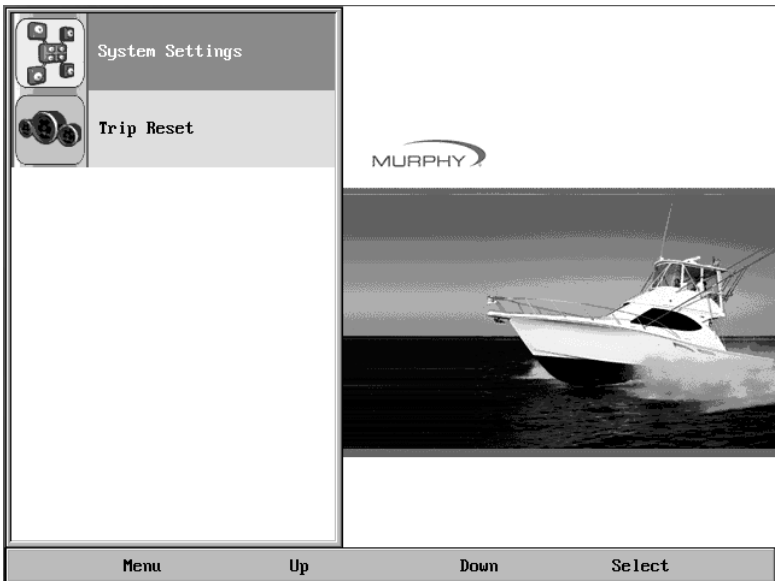
The Home Screen option allows you to specify a favorite screen from the Screen Names list that can be used as a shortcut back to that screen. The Home Screen will also be the first screen shown when Gauge Display is selected from the User Setting menu. Use the **UP** and **DOWN** virtual buttons to scroll through the list until the desired screen is listed. This will be the Home Screen.

Screen Setup

The Screen Setup option provides a list of screens that may be shown when accessing the Gauge Display screens. The 'Status' field will indicate which screen has been specified as the HOME screen. It also provides the user the ability to turn the screens ON or OFF by pressing the **ON/OFF** virtual button. If a screen is turned OFF, it will not show up when Gauge Display is activated.

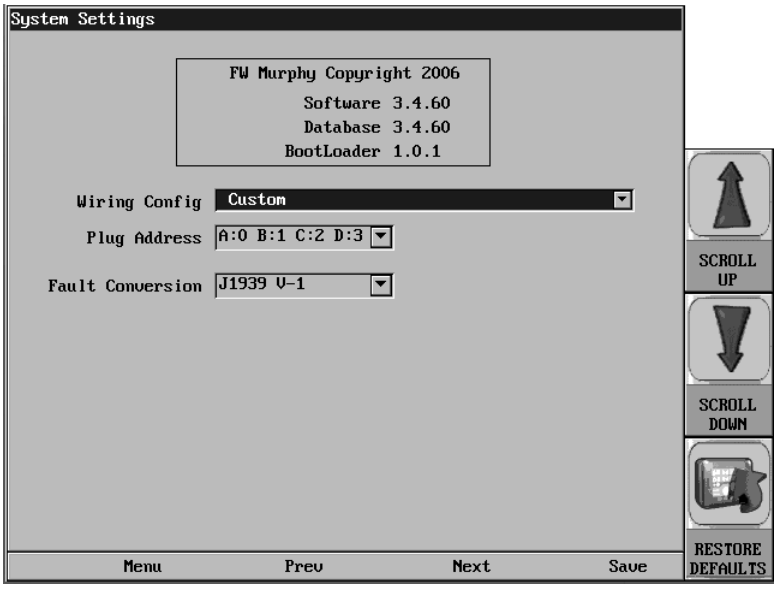
Utilities

Utilities allow you to reset external gauges and configure wiring and communication settings. It is typically only accessed when the unit is first installed in order to configure the unit. The following sub-menu is displayed when Utilities is selected.



System Settings

The System Settings screen displays the current software version loaded on the HV1000 DISPLAY. You can set individual settings for the available options, or choose to select "Restore Defaults" for the factory settings.



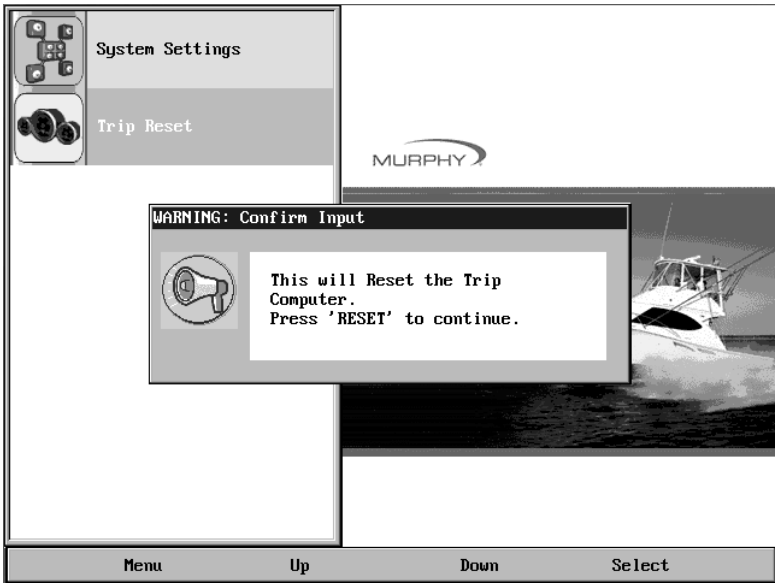
> **NOTE**: Refer to the chapter "Setting Up Your HV1000 Display for the First Time" for more information.

The **Prev** and **Next** buttons allow you to move from field to field. While the cursor is highlighting a field, the **Scroll Up** and **Scroll Down** buttons display available options. Once all the options have been selected, press Save.

> **NOTE:** For guidelines to configure your HV1000 display, refer to the "**Setting Up your HV1000 Display for the First Time**" section of this manual.

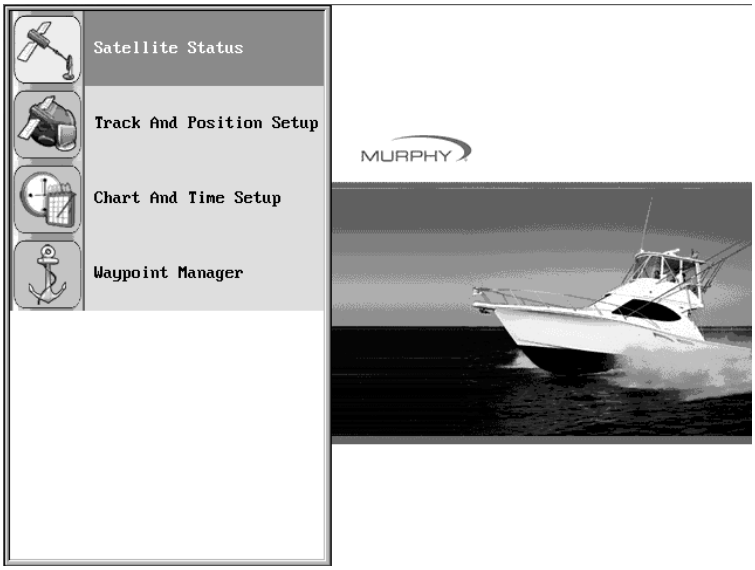
Trip Reset

This option resets the trip computer and fuel economy calculations. A DST or GPS device must be installed to receive speed data in order for the fuel economy calculations to work.



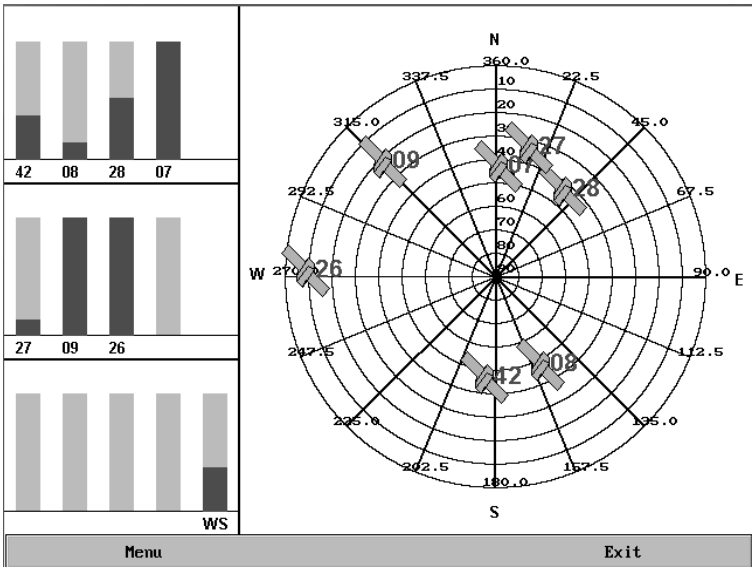
GPS Utilities

When using a GPS device, GPS Utilities will allow you to configure and monitor satellite tracking data. The following sub-menu is displayed when GPS Utilities is selected.



Satellite Status

This feature displays a graphic indicating the satellites currently visible in orbit and the signal strength of each satellite.



Track and Position Setup

This feature allows you to define the amount of detail to display for the longitude and latitude information on the GPS map.

Pressing the **Delete Track** button will delete the current tracking information. **Restore Defaults** will reset the longitude and latitude to the factory default setting.

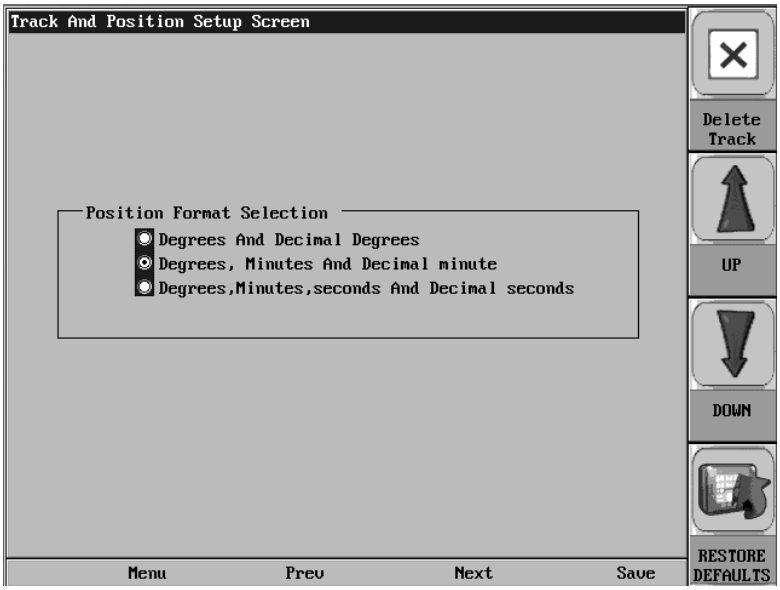


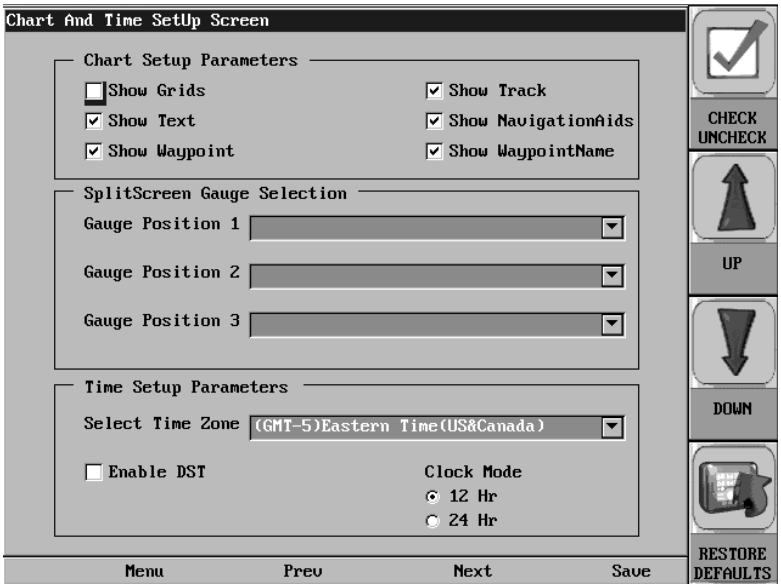
Chart and Time Setup

This menu option allows you to set up viewing options for the GPS Display.

Chart Setup Parameters – use the **Check/Uncheck** button to select the information you want displayed on the GPS screen.

Splitscreen Gauge Selection – allows you to custom configure the type of gauges you want to display in split screen mode.

Time Setup Parameters – is used to select correct time zone and clock mode for either 12-hour or 24-hour time formats. You can also enable DST (Daylight Savings Time) by using the **Check/Uncheck** button to select the box.



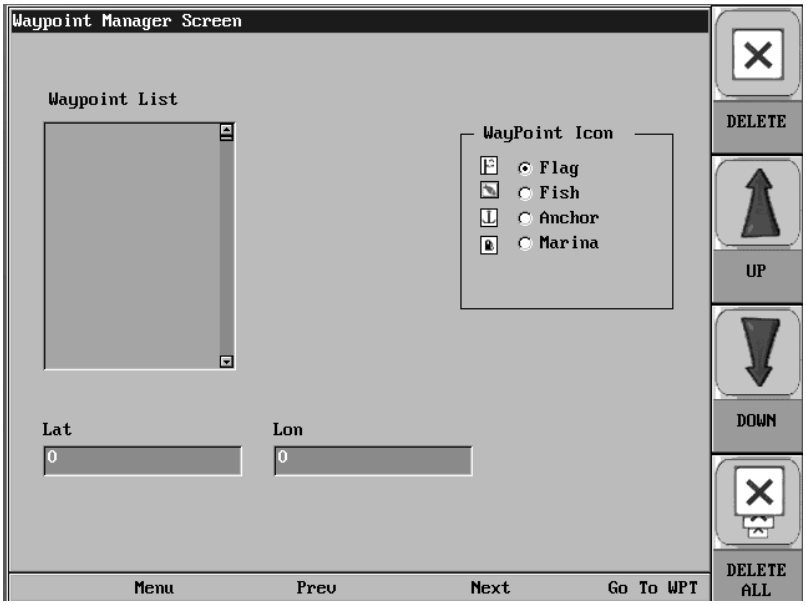
Waypoint Manager

Waypoints allow you to mark specific locations by latitude and longitude. Once the waypoints are established, the Waypoint Manager allows you to associate an icon with them for identification. You can delete a single waypoint by using the **Delete** button, or all of them at once with **Delete All**. Pressing the **Go to WPT** button displays the GPS screen containing the currently highlighted waypoint.

Waypoint List – displays a list of the waypoints that have been set. Use the **Up** and **Down** buttons to highlight the desired waypoint.

Waypoint Icon – allows you to assign one of four different icons to any of the waypoints listed.

Lat/Lon – Displays Latitude and Longitude values for the currently highlighted waypoint on the list.



Reprogramming the HV1000 Display

The SD card slot on the front of the unit is used for reprogramming the unit. It is also used for installing the Navionics maps that are retrieved by the GPS Maps package.

If you have been asked to create the card to reprogram the unit, you should:

1. Insert card into reader/writer.
2. Unzip the file provided into a directory on the PC.
3. Format the card to erase all current files residing on the card.
4. Copy all of the files in the directory to the SD card. Copy only the files to the card, not the directory or the zip file.
5. Remove card and place into display for programming.

The following steps guide you through using the SD card slot to reprogram your HelmView unit.

1. Turn off power to the display.
2. Carefully remove the slot cover.
3. Insert the SD card into the slot until it locks in.
4. The power should be turned on.
5. A screen will appear prompting you to reprogram the unit. Select “INSTALL” to continue. It will take about 6-8 minutes to reprogram the unit.
6. When done, remove the card from the slot and replace the cover.
7. Restart the power. The new software should be installed and available.

Specifications

Electrical

Display	6.4” Color transmissive TFT LCD
Resolution	VGA, 640 x 480 pixels
Orientation	Landscape
Backlighting	CCFL, 350 cd/m² (50,000 h lifetime) not replaceable
Processor	Sharp ARM9 LH7A404, 200 MHz Philips ARM7 LPC2194 70 MHz
Flash Memory	16 Mbytes
RAM	32 Mbytes SDRAM
EEPROM	32 Kbytes
Operating Voltage	6 to 32 VDC, protected against reverse polarity and load-dump
Power Consumption	10 W full backlight 22 W full backlight with heater (< -10º C)
CAN	4 CAN ports according to CAN specification 2.0B. One port isolated according to NMEA 2000
RS-485	2 MODBUS Master ports at 38.4 Kbaud
Protocols	J1939, NMEA 2000, proprietary
Connection	4 Deutsch DT04-6P 6-pin connectors
Keyboard	8 Capacitive Touch Keys

Mechanical

Mounting Variants	Panel Mounting – Mounts with eight screws into the lip of the bezel. Gimbal Mounting – Uses an articulating gimbal.
Dimensions	(W x H) 8.74 x 7.23 in Panel Mount Depth – 0.605 in Unit Depth – 3.265 in
Cutout for panel mounting	(W x H) 7.15 x 5.65 in
Case Material	High impact acrylic front case Polycarbonate back case
Weight	2 lb

Environmental

Operating Temperature	-20º C to +85º C (-40º C with optional heater)
Storage Temperature	-40º C to +85º C
Protection	IP68
Emissions	IEC 60945, 95/54/EC
Immunity	SAE J1113, ISO 11452

NMEA 2000 Parameter Group Numbers (PGNs)*

127245	Rudder
127250	Vessel Heading
127488	Engine Parameters, Rapid Update
127489	Engine Parameters, Dynamic
127493	Transmission Parameters, Dynamic
127505	Fluid Levels
127508	Battery Status
128259	Speed
128267	Water Depth
129025	Position, Rapid Update
129026	COG & SOG, Rapid Update
130310	Environmental Parameters
130576	Small Craft Status

*Partial List

J1939 Parameter Group Numbers (PGNs)*

61442	ETC1 – Electronic Transmission Controller 1
61443	EEC2 – Electronic Engine Controller 2
61444	EEC1 – Electronic Engine Controller 1
61445	ETC2 – Electronic Transmission Controller 2
65164	AAI – Auxiliary Analog Information
65213	FD – Fan Drive
65243	EFL/P2 – Engine Fuel Level/Pressure 2
65248	VD – Vehicle Distance
65253	HOURS – Total Engine Hours
65257	LFC – Liquid Fuel Consumption
65262	ET1 – Engine Temperature 1
65263	EFL/P1 – Engine Fuel Level/Pressure 1
65265	CCVS – Vehicle Speed
65266	LFE –Fuel Economy (Liquid)
65269	AMB – Ambient Conditions
65270	IC1 – Inlet/Exhaust Conditions
65271	VEP – Vehicle Electrical Power
65272	TRF1 – Transmission Fluids 1

*Partial List

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